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Online Learning on the Emotional Pressure and Motivation of Visually Impaired Students

Pembelajaran dalam Talian Mengenai Tekanan Emosi dan Motivasi Pelajar Cacat Penglihatan

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ABSTRACT

Online learning became the primary mode of instruction following the COVID-19 pandemic. Still, its implications for students with special educational needs, particularly those with visual impairments, remain unevenly addressed in current scholarship. In practice, visually impaired students often engage with online learning environments in ways that were not fully anticipated during initial platform design. This condition shapes both emotional responses and learning engagement. This study examines emotional distress and motivation among visually impaired students through a qualitative narrative review of academic literature. The review focuses on three objectives: identifying factors associated with emotional distress, examining elements that influence motivation, and exploring support strategies discussed in previous studies. Academic articles published between 2010 and 2025 were analysed using Scopus, Web of Science, Taylor & Francis, and Google Scholar. The analysis indicates that emotional distress tends to emerge from accessibility limitations, technological constraints, limited pedagogical adaptation, and inconsistent screen reader performance. Rather than occurring in isolation, these factors frequently interact, contributing to sustained frustration and emotional strain. Motivation appears to increase when emotional support is available, adaptive technologies function reliably, and teaching practices promote interaction. Learning experiences are further shaped by contextual factors, including the home learning environment, teachers' confidence in using educational technology, and opportunities for social interaction. Overall, these findings point to the need for more coherent, inclusive education policies, sustained teacher training in assistive technologies, and the development of online platforms that meaningfully accommodate visually impaired users. Further research is needed to examine psychosocial interventions that integrate emotional, technological, and pedagogical support within online learning settings.

Keywords: online learning; emotional; pressure; motivation; visually impaired

ABSTRAK

Pembelajaran dalam talian menjadi mod pengajaran utama berikutan pandemik COVID-19. Namun, implikasinya terhadap pelajar berkeperluan pendidikan khas, terutamanya mereka yang cacat penglihatan, masih tidak mendapat perhatian yang sama dalam kesarjanaan semasa. Dalam amalan, pelajar cacat penglihatan sering terlibat dengan persekitaran pembelajaran dalam talian dengan cara yang tidak dijangka sepenuhnya semasa reka bentuk platform awal. Keadaan ini membentuk kedua-dua tindak balas emosi dan penglibatan pembelajaran. Kajian ini mengkaji tekanan emosi dan motivasi dalam kalangan pelajar cacat penglihatan melalui tinjauan naratif kualitatif kesusasteraan akademik. Kajian juga memfokuskan kepada tiga objektif: mengenal pasti faktor yang berkaitan dengan tekanan emosi, mengkaji unsur-unsur yang mempengaruhi motivasi, dan meneroka sokongan strategi yang dibincangkan dalam kajian lepas. Artikel akademik yang diterbitkan antara 2010 dan 2025 dianalisis menggunakan indeks Scopus, Web of Science, Taylor & Francis, dan Google Scholar. Analisis menunjukkan bahawa tekanan emosi cenderung untuk muncul daripada had kebolehcapaian, kekangan teknologi, penyesuaian pedagogi yang terhad dan prestasi pembaca skrin yang tidak konsisten. Daripada berlaku secara berasingan, faktor ini kerap berinteraksi, menyumbang kepada kekecewaan dan tekanan emosi yang berterusan. Motivasi kelihatan meningkat apabila sokongan emosi tersedia, teknologi adaptif berfungsi dengan pasti, dan amalan pengajaran menggalakkan interaksi. Pengalaman pembelajaran lebih jauh dibentuk oleh faktor kontekstual, termasuk persekitaran pembelajaran di rumah, keyakinan guru dalam menggunakan Pendidikan teknologi, dan peluang untuk interaksi sosial. Secara keseluruhan, penemuan ini menunjukkan keperluan untuk lebih koheren, dasar pendidikan inklusif, latihan guru yang berterusan dalam teknologi bantuan, dan pembangunan dalam talian, serta platform yang mampu menampung pengguna cacat penglihatan. Kajian lanjut diperlukan untuk meneliti dan campur tangan psikososial bagi mengintegrasikan sokongan emosi, teknologi dan pedagogi dalam pembelajaran secara talian tetap.

Kata kunci: Pembelajaran dalam talian; emosi; tekanan; motivasi; cacat penglihatan

INTRODUCTION

The use of online learning increased very quickly during the COVID-19 pandemic. In Malaysia, the Ministry of Education Malaysia in 2020 reported that digital platforms were used on a large scale to ensure that teaching and learning could continue. Even after schools returned to face-to-face classes, the Organisation for Economic Co-operation and Development in 2021 noted that digital technologies still play an essential role in how students access and interact with learning materials. According to Smith (2021), online learning can help students with visual impairments overcome geographical barriers. However, this potential depends primarily on whether assistive technologies and inclusive teaching practices are applied effectively. Jones and Brown (2019) explain that visually impaired students rely on screen readers, electronic Braille displays, voice prompts, and structured navigation, which create additional mental and emotional demands compared to those of sighted students. Lee (2020) further notes that when these tools are poorly integrated, students must put in extra effort to access content, which often leads to frustration and emotional strain. Smith (2021), along with Deci and Ryan (1985), suggests that emotional distress frequently arises when technology, teaching methods, and learner needs do not align, underscoring the importance of learning environments that support autonomy and reduce unnecessary cognitive load.

Students with special needs are also reported to experience higher levels of stress during online learning. Johnson et al. (2020) and Kumar and Singh (2021) found that online learning often leads to digital fatigue and feelings of isolation. Smith (2021) points out that the specific experiences of students with visual impairments are still not widely discussed, which limits understanding of how psychological, technological, and instructional factors interact. Lee (2020) and Deci and Ryan (1985) argue that emotional distress is usually caused by structural and pedagogical barriers rather than by students' personal limitations. UNESCO (2020) stresses that recognising these systemic issues enables educators and policymakers to focus on improving accessibility and psychosocial support rather than placing the responsibility solely on students.

Over the past decade, digital technologies have gradually changed education systems worldwide. The OECD (2021) explains that this transformation became more evident during the pandemic. In Malaysia, the Ministry of Education and the Ministry of Higher Education in 2020 documented the rapid shift to online learning to maintain educational continuity. While this shift increased flexibility, Smith (2021) notes that it also revealed weaknesses in inclusive education practices. Students with visual impairments depend heavily on adaptive technologies and straightforward navigation, and they face more difficulties when learning platforms are not accessible. Lee (2020) argues that successful online learning is not only about having technology, but also about how well instructional design and platform usability support both learning outcomes and emotional well-being.

Although inclusive education is emphasised in Malaysia's National Special Education Policy (2007) and the Education Blueprint 2013–2025, Kumar and Singh (2021) observe that its implementation remains inconsistent. Problems such as unequal digital infrastructure, limited teacher skills in adaptive technology, and inaccessible learning materials continue to affect visually impaired students. Smith (2021) and Jones and Brown (2019) explain that platforms that do not support screen readers, lack audio descriptions, and offer limited instructional guidance increase emotional stress and reduce motivation. Lee (2020), supported by Deci and Ryan (1985), adds that these difficulties are linked to reduced autonomy and social interaction, making students more vulnerable to digital fatigue and disengagement.

Smith (2021) further highlights that despite the widespread use of online learning, visually impaired students still face barriers that affect their motivation and emotional well-being. When platforms do not meet WCAG standards and teaching approaches are not inclusive, students struggle to learn independently, which can lead to frustration and withdrawal. Lee (2020) notes that although digital learning has been widely studied, research linking emotional distress and motivation among visually impaired students in Malaysia remains limited. Therefore, this qualitative narrative literature review explores how technological, pedagogical, and psychosocial factors together influence emotional distress and motivation in online learning.

Motivation plays a key role in academic engagement. Smith (2021) and Deci and Ryan (1985) explain that students are more motivated when they feel autonomous, capable, and socially connected. Jones and Brown (2019) show that visually impaired students who receive accessible materials, consistent teacher support, and opportunities for interaction tend to remain more engaged. In contrast, Lee (2020) finds that navigation problems, inaccessible materials, and unclear instructions often result in disengagement and weaker academic performance. Kumar and Singh (2021) also point out that home learning conditions, such as internet access, device availability, and family support, affect students' emotional well-being and participation. This shows that motivation is closely connected to the broader learning environment.

To better understand these experiences, this study applies several theoretical frameworks. Deci and Ryan (1985) emphasise that motivation depends on autonomy, competence, and relatedness, which are often limited when students cannot access materials independently or feel isolated. Mishra and Koehler (2006) argue that effective integration of technology, pedagogy, and content (TPACK) is essential, and Smith (2021) explains that weak TPACK skills among teachers can result in inaccessible learning experiences and lower motivation. Davis (1989), through the Technology Acceptance Model, also suggests that students are less likely to engage with systems they find challenging to use, which increases emotional distress and reduces motivation.

Finally, Lee (2020) and Smith (2021) observe that although online learning and assistive technologies have been widely studied, the emotional and motivational experiences of visually impaired students in fully digital settings remain poorly understood. Very few studies combine technological, pedagogical, and psychosocial perspectives, especially in the Malaysian context. By focusing on students' experiences, this study addresses this gap and offers a more complete understanding of how emotional distress and motivation are shaped in online learning. The findings provide valuable insights for educators, policymakers, and platform developers, showing that online learning can only be truly inclusive when emotional well-being and motivation are considered alongside accessibility.

LITERATURE REVIEW

The sudden shift to online learning has clearly affected visually impaired students, especially their emotions and learning motivation. This change was not only about moving classes online, but also about how students had to adjust to new learning systems that were often not designed for their needs. A qualitative narrative review indicates that factors such as technology, teaching approach, teacher support, and family environment play an essential role in shaping students' learning experiences. As explained by Al-Azawei, Serenelli, and Lundqvist (2016), and supported by Wong (2020), online learning may offer flexibility. Still, this benefit becomes limited when students face access problems, emotional pressure, and a lack of motivation. For this reason, this qualitative

narrative literature review focuses on findings from both international and local studies to better understand the emotional and motivational challenges faced by visually impaired students.

Online learning has been widely discussed in education research, especially after the COVID-19 pandemic. However, when looking specifically at students with visual impairments, their challenges differ from those of typical students. Studies by Al-Azawei, Serenelli, and Lundqvist (2016) and Holloway (2020) show that learning for visually impaired students does not depend only on assistive technology. Instead, emotional well-being, motivation, teaching practices, and social support all influence how students engage in online learning. These factors often overlap, which explains why some students struggle emotionally even when assistive tools are available. This suggests that online learning for visually impaired students needs to be understood more holistically.

TECHNOLOGY AND ACCESSIBILITY

Technology and accessibility are often highlighted as the main issues faced by visually impaired students in online learning. These students depend on screen readers, electronic Braille displays, and audio navigation to access learning materials. However, Al-Azawei, Serenelli, and Lundqvist (2016) explain that when online platforms are inaccessible, students experience frustration and stress as they struggle to navigate content and complete tasks on time. Over time, these repeated difficulties can affect students' confidence and emotional well-being.

Holloway (2020) also points out that the lack of audio labels, alternative text, and clear instructions can make students feel excluded from the learning process. This sense of exclusion often reduces their motivation to continue engaging with online lessons. According to Burgstahler (2015), platforms that follow the Web Content Accessibility Guidelines (WCAG) help mitigate these problems by making learning materials easier to access and understand. However, research in the Malaysian context by Halim (2021) and Mohd Yusoff (2022) shows that many institutions still do not consistently apply these guidelines. This is often linked to limited digital infrastructure and insufficient teacher training.

Access to technology is, therefore, not just a technical issue but also an emotional one. Kelly and Smith (2021) highlight that screen readers, digital Braille software, and OCR tools are essential for visually impaired students to participate in online learning. However, as noted by Zhang and Adesope (2021) and Al-Azawei et al. (2016), many platforms remain difficult to use because they are not fully accessible. Smith (2018) and Ma (2021) explain that these barriers increase cognitive load, making it harder for students to focus and understand learning content. Additional issues such as poor audio quality, complicated navigation, and limited access to assistive devices, as discussed by Low (2018) and Torres (2020), further increase learning stress. Omar (2020) and Mohamad (2020) also note that when teachers and family members lack basic technology skills, students receive less effective support at home, which affects their learning progress, as also observed by Walker (2019) and Ibrahim (2020).

EMOTIONAL STRESS IN ONLINE LEARNING

Emotional stress is often discussed in studies involving students with visual impairments who participate in online learning. Zhang and Adesope (2021) explain that students who cannot access learning materials independently, face frequent technical problems, or have limited interaction with teachers and peers tend to experience stress, anxiety, and digital fatigue. These emotional

reactions not only affect students psychologically but also reduce their interest and motivation to learn. Deci and Ryan (1985) argue, through Self-Determination Theory, that when students lack autonomy, feel less competent, or are socially disconnected, emotional stress is more likely. This situation is common in online learning environments where visually impaired students depend heavily on technology to follow lessons.

Burgstahler and Cory (2016) also highlight that emotional stress among visually impaired students is closely linked to social isolation. In online classrooms, these students often struggle to follow group discussions or spontaneous interactions because such activities rely heavily on visual cues. As a result, opportunities to build social connections become limited, causing students to feel left out and less willing to participate actively. This experience reflects the findings of Fichten, Asuncion, and Jorgensen (2019), who report that reduced social interaction in digital learning environments increases the risk of mental fatigue, demotivation, and feelings of isolation.

Several studies further show that visually impaired students experience higher levels of emotional stress compared to typical students in virtual learning settings. Sharma and Singh (2020) and Noor (2021) note that this stress is caused by factors such as overreliance on auditory input and continuous listening during lessons. Williamson and Court (2022) and Sato (2020) describe this as audio fatigue, which makes it harder for students to concentrate over long periods. Social isolation is another major issue, as discussed by Martin and Kutscher (2021) and Rahman (2020), especially when students cannot see facial expressions or body language during online interactions (Lee, 2019; Samad, 2020). Inaccessible tasks and materials also contribute to stress, lowering students' confidence and increasing frustration (Russell, 2017; Kamaruddin, 2022; Hase, 2020; Becker, 2018). Many studies, including those by Choi (2021) and Tang (2020), show that prolonged emotional stress is associated with reduced motivation to learn.

STUDENTS WITH VISUAL IMPAIRMENTS' MOTIVATION

Motivation plays an essential role in the academic performance of students with visual impairments. Many studies suggest that motivation is influenced by access to adaptive technology, teacher support, learning materials, and social interaction. Burgstahler (2015) found that students who have access to suitable technology, accessible learning materials, and teachers trained in inclusive practices tend to show higher motivation compared to those who face constant technical difficulties. Holloway (2020) also reports that students become more motivated when they feel confident using assistive technology and can understand lesson content independently.

Social support is another factor that strongly affects motivation. Al-Azawei et al. (2016) explain that students who receive clear instructions, emotional encouragement, and opportunities to interact with others feel more engaged and less stressed. This shows that motivation among visually impaired students depends not only on technology but also on how teachers and peers support their learning experience.

Deci and Ryan (1985) and Fichten et al. (2019) further explain that motivation increases when students can access materials easily, receive peer support, and follow a clear learning structure. Perez and Jordan (2019) and Wong (2020) note that students respond more positively when materials are delivered in clear audio formats, follow a structured flow, and include tactile or hands-on elements. On the other hand, Ashraf et al. (2021) and Ullah (2020) report that motivation decreases when platforms are not screen-reader friendly or when teachers provide limited feedback. Park (2019) and Santos (2021) observe that recurring technical problems can make students feel less capable, thereby weakening their intrinsic motivation. Studies by Lepper

(2020) and Thong (2022) also confirm that ongoing social support helps students stay motivated and engaged in online learning.

THE ROLE OF TEACHERS AND INCLUSIVE PEDAGOGY

Teachers play an essential role in shaping the online learning experience of students with visual impairments online learning experience. Mishra and Koehler (2006) explain, through the concept of Technological Pedagogical Content Knowledge (TPACK), that effective teaching requires a balance among technology, pedagogy, and content. However, in practice, this balance is not always achieved. Holloway (2020) found that teachers who lack skills in using adaptive technology often provide materials that are difficult for visually impaired students to access. This situation can lead to frustration, emotional stress, and reduced motivation among students.

Beyond technical skills, teachers' attitudes and teaching approaches also matter. Fichten et al. (2019) show that inclusive teaching practices, such as offering flexible learning options and alternative materials, such as audio recordings, Braille, or descriptive text, help students feel more confident and involved in learning. When students are given choices and feel capable of completing tasks, their motivation tends to increase. This supports the idea in Self-Determination Theory by Deci and Ryan (1985), which highlights autonomy and competence as essential elements in sustaining motivation.

Teachers are, therefore, a key factor in determining whether online learning works well for visually impaired students. However, studies by Altinay and Onyema (2020) and Halim (2021) indicate that many teachers still lack sufficient digital skills to support inclusive education. Burgstahler and Cory (2016) and Marcella (2017) report that learning materials are often shared without alternative text, audio explanations, or flexible assessment options. Such practices increase emotional stress and lower student motivation, as noted by Kamaruddin (2022) and Noor (2021). On the other hand, Cook and Howell (2021) and Pratama (2022) find that when teachers use inclusive strategies such as clear verbal explanations, adapted tasks, and two-way communication, students show higher motivation. Strong teacher–student relationships also help reduce emotional stress and provide a sense of support (Rohatgi & Sundaram, 2021; Malik, 2020).

HOME ENVIRONMENT AND FAMILY SUPPORT

Apart from school-related factors, the home environment also plays an essential role in online learning. Al-Azawei et al. (2016) and Halim (2021) explain that internet stability, access to digital devices, and family support strongly influence students with visual impairments' emotional well-being and motivation. Students who receive regular support from family members tend to cope better with online learning challenges and remain more motivated.

Findings from qualitative narrative literature reviews further show that family involvement helps reduce emotional stress among visually impaired students. Mok and Abdullah (2021) and Yasin (2021) report that support, such as helping students read materials, providing a quiet study space, and assisting with technology use, reduces learning stress. However, Karim and Zainal (2022) and Mohd Yusoff (2022) note that families from low-income backgrounds often face difficulties, including weak internet connections, limited devices, and low digital skills. These limitations affect students' participation in online learning and gradually reduce their motivation (Omar, 2020; Noor, 2021). For visually impaired students, family support becomes even more critical because many learning activities require physical assistance and guidance at home.

LITERATURE GAPS AND RESEARCH NEEDS

Although previous studies have discussed technical challenges, emotional stress, and motivation among visually impaired students, several gaps can still be seen in the literature. One clear gap is the lack of studies that look at psychological, technological, and pedagogical factors together. Most studies examine these aspects separately, making it difficult to understand how they interact in real online learning situations. Another gap is related to context. Research on Malaysia remains limited, even though cultural background, education policies, and family support may influence the learning experiences of visually impaired students in different ways. In addition, the link between emotional stress and motivation in digital learning has not been examined in detail, particularly among students who rely entirely on online education. Therefore, this qualitative narrative literature review aims to bring together existing findings, identify common patterns and challenges, and highlight support strategies that may be useful in both Malaysian and international contexts.

Although research on online learning continues to grow, qualitative narrative literature reviews show that important areas remain underexplored. Many studies focus mainly on technology or teaching methods, while the relationship between emotional stress and motivation among visually impaired students receives less attention (Kim, 2021; Vasquez, 2021). In the Malaysian context, research is still relatively scarce (Ariffin & Yusoff, 2022; Noor, 2021), and only a small number of studies examine the long-term emotional effects of digital learning on visually impaired students (Russell, 2017; Cook & Howell, 2021). Another concern is that the voices of visually impaired students themselves are often missing, as many studies rely more on teachers' or parents' views (Hase, 2020; Ibrahim, 2020). For this reason, future research should place more emphasis on students' own experiences and develop online learning models that better suit the needs of visually impaired learners.

METHODOLOGY

This study uses a qualitative narrative literature review to explore students with visual impairments' online learning experiences, focusing on emotional stress and motivation. This approach was chosen because it allows the researcher to discuss and interpret existing studies flexibly, rather than following a strict or technical review process. It is suitable for this study because research on visually impaired students, especially in Malaysia, is still limited and scattered.

Instead of collecting all available studies, this review focuses on understanding common issues, shared experiences, and recurring challenges reported in previous research. The aim is to examine how factors such as technology, teaching practices, emotional challenges, and learning motivation are connected in online learning settings. This narrative approach helps explain students' experiences more clearly and practically.

Relevant studies were identified through searches in academic databases, including Scopus, Web of Science, Taylor & Francis, and Google Scholar. These databases were chosen because they provide access to reliable and peer-reviewed academic work. Keywords such as "online learning," "visually impaired students," "blind students," "emotional stress," "motivation," "assistive technology," and "inclusive education" were used to guide the search. The keywords were adjusted as needed to identify studies closely related to the research focus.

Most of the selected studies were published between 2010 and 2025 to reflect current developments in digital learning and assistive technology. Both international and Malaysian studies were included to facilitate comparison and highlight gaps in local research. Studies that focused only on typical students without discussing visual impairment were not prioritised, as they did not directly support the aim of this study.

Each article was carefully read and analysed to identify key ideas and recurring themes. Rather than using a strict coding system, the analysis focused on grouping studies with similar findings. The main themes identified include technological accessibility, emotional stress in online learning, student motivation, the role of teachers, and inclusive teaching practices, as well as the influence of family support and home environment. This thematic approach helps present the findings more clearly and more organised.

To improve the reliability of the analysis, findings from different studies were compared to check for similarities and differences. Studies using various research methods, including qualitative, quantitative, and mixed-methods approaches, were reviewed together to gain a broader understanding of the issues discussed. This comparison helps reduce bias and strengthens the overall interpretation of the literature.

Several established theories also guided the discussion. Self-Determination Theory (Deci & Ryan, 1985) was used to explain issues related to emotional stress and motivation, especially in terms of autonomy, competence, and social connection. The TPACK framework (Mishra & Koehler, 2006) helped explain teachers' roles in using technology effectively, while the Technology Acceptance Model (Davis, 1989) supported the discussion of how usability and ease of use affect student engagement in online learning.

Overall, this qualitative narrative literature review provides an overview of existing research on online learning among students with visual impairments. By focusing on student experiences and key themes, this method supports the study's aim of understanding how emotional stress and motivation are shaped in online learning environments. The findings from this review provide a strong basis for further discussion in the Results and Discussion section.

RESULTS AND DISCUSSION

This review looks at the experiences of visually impaired students in online learning, focusing on emotional stress and motivation. From the studies analysed, it is clear that three main factors strongly influence students' experiences: (1) technology and accessibility, (2) teaching support and pedagogy, and (3) social and home environment. The discussion below connects the literature to the objectives of this study and provides a clearer picture of the challenges and supports affecting visually impaired students in online learning.

TECHNOLOGY AND ACCESSIBILITY

Technology plays a significant role in how students with visual impairments experience online learning. Students who can use platforms that are easy to navigate, with reliable screen readers, audio or Braille materials, and precise digital navigation usually show higher motivation. For instance, Al-Azawei et al. (2016) found that students struggle emotionally when platforms are hard to use, or materials are not visually impaired-friendly. These students often feel helpless and anxious about completing tasks. Similarly, Holloway (2020) notes that missing features, such as

alternative text or audio descriptions, can make students feel left out and less interested in the lessons.

Following accessibility standards is also very important. Burgstahler (2015) highlighted that platforms that comply with WCAG standards can foster a more positive learning experience and increase motivation. However, local studies in Malaysia (Halim, 2021; Mohd Yusoff, 2022) show that many schools still do not fully implement these standards. Problems such as a lack of teacher training and weak digital infrastructure often leave students unable to access learning materials, which can affect both their learning progress and emotional health.

EMOTIONAL STRESS AND PSYCHOLOGICAL ISSUES

Emotional stress is a significant challenge for visually impaired students in online learning. Zhang and Adesope (2021) found that students dealing with technical problems or limited teacher and peer support often experience stress, anxiety, and fatigue from using digital tools. This stress can lower motivation and affect academic performance. According to Deci and Ryan (1985) and Self-Determination Theory, students are more likely to feel stressed and less motivated when their needs for autonomy, competence, and social connection are not met.

Stress is also caused by limited social interaction. Fichten, Asuncion, and Jorgensen (2019) noted that students miss out on informal classroom communication, such as group discussions or spontaneous chats, which reduces their chances of forming social bonds. Feeling isolated makes students less interested in participating actively. Burgstahler and Cory (2016) added that emotional support from teachers and inclusive teaching methods can reduce stress and boost motivation, showing the importance of both social and pedagogical support.

VISUALLY IMPAIRED STUDENT MOTIVATION

Motivation among visually impaired students in online learning depends on a few main factors, such as access to adaptive technology, high-quality learning materials, and opportunities to interact socially. Holloway (2020) and Burgstahler (2015) found that students with reliable devices and learning materials designed for visually impaired learners can maintain motivation and perform better academically. Students feel more confident and motivated when they can use technology independently and understand what they are learning.

Motivation also depends a lot on how teachers teach. Teachers who are flexible, provide alternative materials such as audio or Braille, and encourage social interaction can make students feel more interested and involved (Fichten et al., 2019). The TPACK framework (Mishra & Koehler, 2006) shows that teachers need to integrate technology, pedagogical content knowledge, and instructional design to make learning inclusive. When teachers lack these skills, students may feel frustrated, stressed, and less motivated.

The home environment also influences motivation. Al-Azawei et al. (2016) and Halim (2021) found that having stable internet access, the right devices, and family support help students adapt better to online learning. Students who get help from their families and have a quiet, suitable place to study tend to stay focused, feel more confident, and maintain higher motivation.

This review also shows that emotional stress and motivation are connected. When students feel a lot of stress, their motivation drops. On the other hand, motivated students are better at coping with stress. For example, Burgstahler (2015) and Holloway (2020) found that students who can easily navigate online platforms and get support from teachers and peers feel less stressed and stay motivated. This means that giving help with technology, teaching, and social support can improve both how students think and how they learn.

In addition, small daily obstacles can make a big difference to students' emotional state. For instance, a visually impaired student may feel frustrated if a document lacks proper audio descriptions or if a platform is challenging to navigate (Burgstahler, 2015; Holloway, 2020). These minor problems can pile up, lowering motivation over time. On the other hand, students who receive guidance from a teacher showing how to use a screen reader or a classmate helping with assignments (Al-Azawei et al., 2016; Fichten et al., 2019) are more likely to stay engaged. Support does not have to be complicated, even regular check-ins, clear instructions, or reminders can reduce stress and help students feel more confident (Deci & Ryan, 1985; Burgstahler, 2015). Motivation acts as a protective factor, assisting students to continue learning even when challenges arise (Holloway, 2020).

IMPLICATIONS FOR INCLUSIVE EDUCATION

These findings are essential for making education more inclusive, especially in Malaysia. First, schools need to provide online learning platforms that are accessible to visually impaired students, conform to WCAG standards, and offer alternative materials. Second, teachers should receive better training in adaptive technology and inclusive teaching to better support students. Third, social support from family and peers is key to keeping students motivated and reducing stress. Overall, this shows that online learning is not just about providing access to content; it also affects how students feel and how well they do academically.

In addition, creating an inclusive online environment involves more than technology alone. Students benefit when teachers give clear instructions, use multiple formats like audio and Braille, and check in regularly to ensure students understand the tasks (Burgstahler, 2015; Holloway, 2020; Al-Azawei et al., 2016). Families can play an equally important role by helping set up devices, providing a quiet study space, or assisting with navigation on learning platforms (Halim, 2021). Peer support is also valuable; for instance, working with classmates can reduce feelings of isolation and help students gain the confidence to participate in group activities (Fichten et al., 2019). Together, these elements create a supportive ecosystem that addresses both academic needs and emotional well-being. When schools, teachers, families, and peers work together, students feel more capable, less stressed, and more motivated to learn, demonstrating that inclusive online education is as much about relationships and guidance as it is about technology.

SUGGESTIONS FOR FURTHER RESEARCH

Several gaps in the literature were identified, suggesting directions for future research. Firstly, there is a clear need for empirical studies that directly involve visually impaired students in Malaysia. Most previous research was conducted in Western countries, and local data would provide a better understanding of the unique challenges and needs faced by students in Malaysian educational contexts.

Secondly, future research should investigate the effectiveness of specific adaptive technology interventions. This could include audio-based AI, haptic navigation systems, next-generation screen readers, or learning management systems designed for students with special needs. Experimental or mixed-methods studies could provide more robust evidence on how such technologies affect students' emotional well-being and motivation.

Thirdly, examining teachers' pedagogical skills in inclusive digital teaching is essential. Longitudinal research could explore how teacher training influences student motivation and reduces emotional stress over time.

Finally, the perspectives of families and caregivers deserve greater attention. The home environment is a critical factor in online learning, particularly for students with special needs. Future studies focusing on family support can provide insights into how home-based factors contribute to students' emotional well-being and engagement.

CONCLUSION

This study concludes that a complex interaction of technological, pedagogical, and psychological factors shapes online learning experiences for visually impaired students. Accessibility issues remain a significant challenge, often causing emotional distress and reducing student motivation. Platforms that are not screen reader-friendly, teaching materials without audio descriptions or alternative text, and non-compliance with WCAG standards create barriers that increase cognitive load and frustration. Students must not only understand the learning content but also overcome avoidable technical obstacles that hinder a truly inclusive digital learning environment.

Motivation among visually impaired students is closely tied to how well teachers implement inclusive pedagogy. Teachers who are skilled in the TPACK framework and provide adaptive learning materials help students engage more actively, which reduces emotional stress. Social support from family, peers, and learning communities also plays a key role as a protective factor, boosting motivation and resilience in online learning.

In conclusion, online learning can be genuinely inclusive only when adaptive technology, inclusive pedagogy, and psychosocial support are considered together. Digital learning is not just about delivering content as it also affects students' emotional well-being and academic success. Educational institutions, policymakers, and teachers need to understand this relationship to develop more responsive and empathetic learning approaches for visually impaired students.

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